4/6

These slides have
been updated in
new (Times)
format:
FPRB 4l, 5, 7b, 7b,
83a, 83b, 86

newly formatted document
has replaced old document.

Customer Service in the United States

Agenda

|	
9:30-10:00	*Registration*
10:00-12:00	**The Tides of Change in Customer Services** The Strategic • Implications • Opportunities This presentation identifies the key players, describes the current environment, analyses the actions of IBM and others in the marketplace, and concludes with the overall strategic implications/opportunities, as well as the implications/opportunity for each key player.
12:00-1:00	*Lunch*
1:00-2:30	**The U.S. Customer Service Market** This presentation defines the U.S. market in categories of large systems, small systems, microcomputers, peripherals, and third-party maintenance. It provides INPUT's projection of each market segment, as well as the methodology and the reasons behind the projections.
2:30-2:45	*Break*
2:45-4:30	**User Requirements versus Service Delivered** This presentation will provide the results of INPUT's 1988 user research. User requirements for large systems, small systems, and third-party maintenance will be compared with service delivered. Comparisons are made between major vendors on all key areas of service and support.
4:30-5:00	**Questions and Answers**

INPUT

CUSTOMER SERVICE
IN THE
UNITED STATES

4
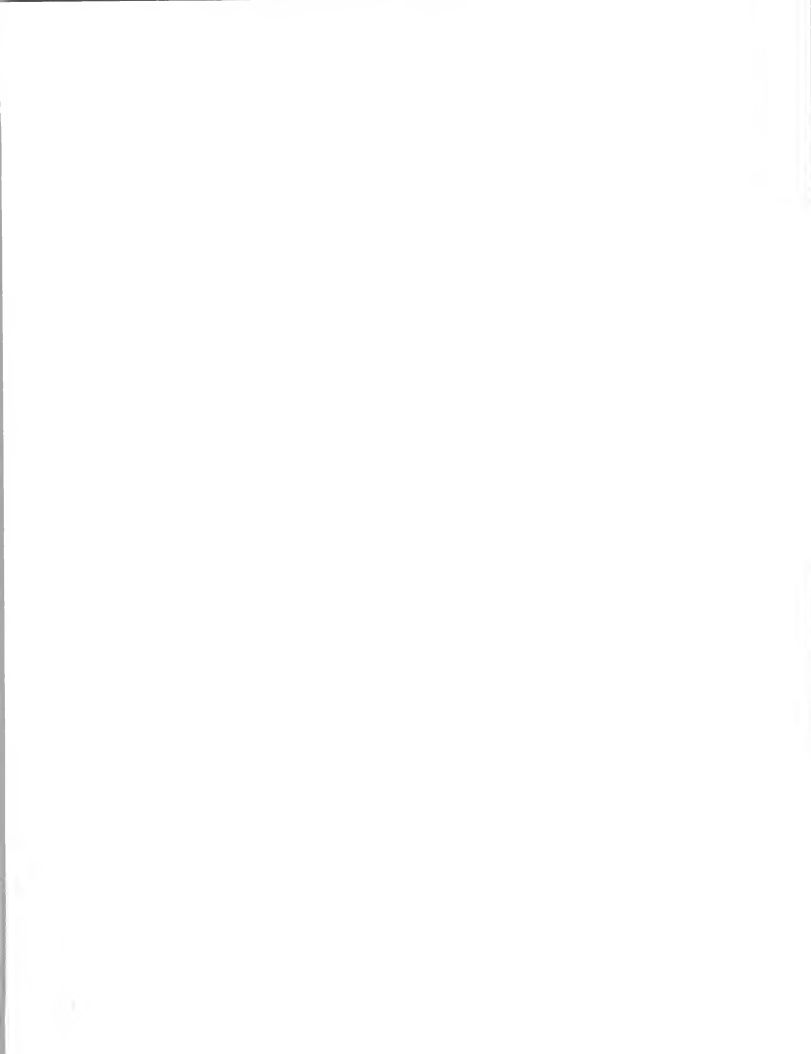
Customer Service and Support

H. W. Stigler
Manager, Customer Service Program
INPUT

THE TIDES OF CHANGE IN CUSTOMER SERVICES

The Strategic

- Implications
- Opportunities

AGENDA

- Key Players

- Environment

- IBM's Actions

- Press Clippings

- Strategic Implications Overall

- Key Players Implications/Opportunities

- Overview of 1989 INPUT CSP Program

INPUT

ENVIRONMENT

- Technology/Architecture

- Support

- Warranty

- Contract Coverage

- Vendor Services—A Key Asset

- Marketplace

- User Needs vs. Service Delivered

INPUT

THE KEY PLAYERS

- Vendors (Hardware and Software)
  - Product Designers
  - Service Operational Management
  - Business Managers (Service or Product?)

- Dealers/VARs

- TPM (Third-Party Maintenance)

- I/S Users

INPUT

TECHNOLOGY/ARCHITECTURE

- Very High Reliability/Low Failure Rates

- High Speed

- Multivendor Architecture Support
  - Applications
  - Networks
  - Operating Systems

- Sophisticated Network Design and Network Management Tools

- Fewer Field Replaceable Units

- Increased Cost per Replaceable Unit

- Sophisticated Diagnostics

- Less On-Site Skill to Service

- Powerful PCs/Workstations
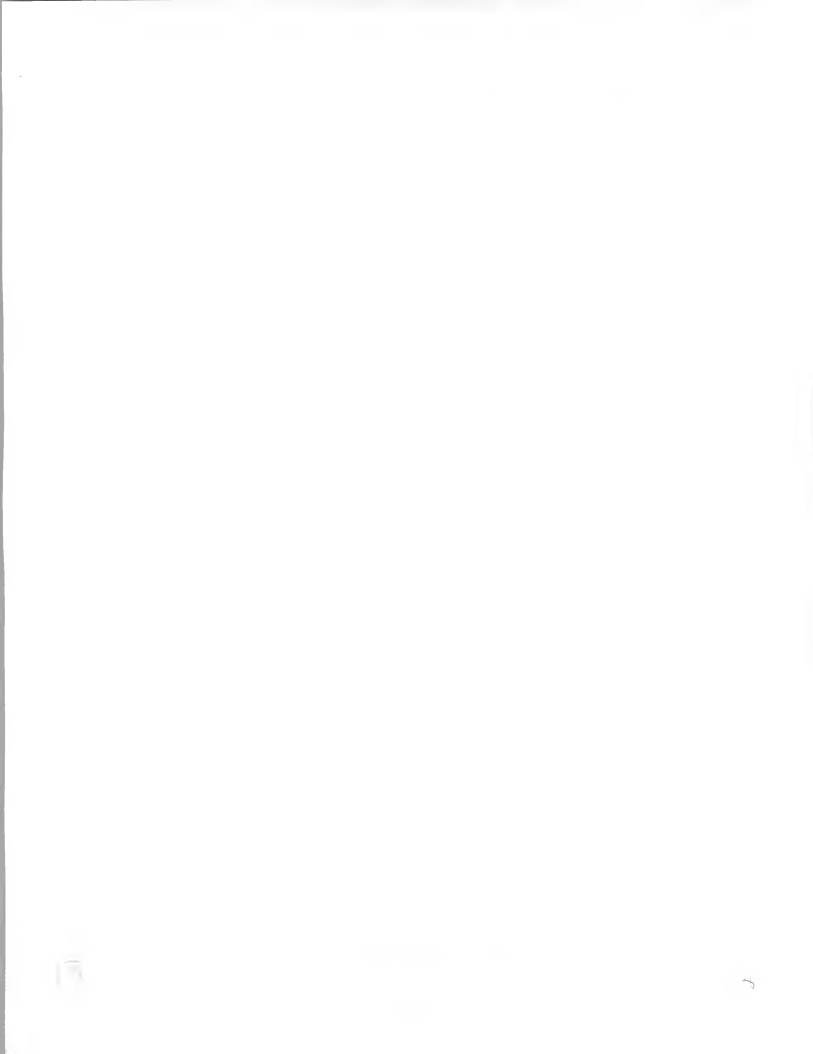
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SUPPORT

- Remote Diagnostics

- Remote System Monitoring

- TP Distribution for Software and Microcode

- Problems Data Base

- Parts Logistics

- Problem Management System

- Call Management System

- Expert Systems

INPUT

VENDOR CONTRACT COVERAGE

Large Systems   90+%

Small Systems   60+%

PC/Workstations   20-%

VENDOR WARRANTY COVERAGE

Large Systems
  CPUs   1 Year
  Peripherals   3 Months-1 Year

Small Systems   3 Months-1 Year

PCs/Workstations   3 Months-1 Year-3 Years-?

INPUT

VENDOR SERVICE—A KEY ASSET

- Significant Revenue Source

	1987 ($ Millions)	Total IS Revenues (Percent)
IBM	7,691	15.2
DEC	3,087	29.7
UNISYS	2,002	22.9
NCR	1,556	30.7

- Key Ingredient in Cost of Ownership

- Key to Account Control

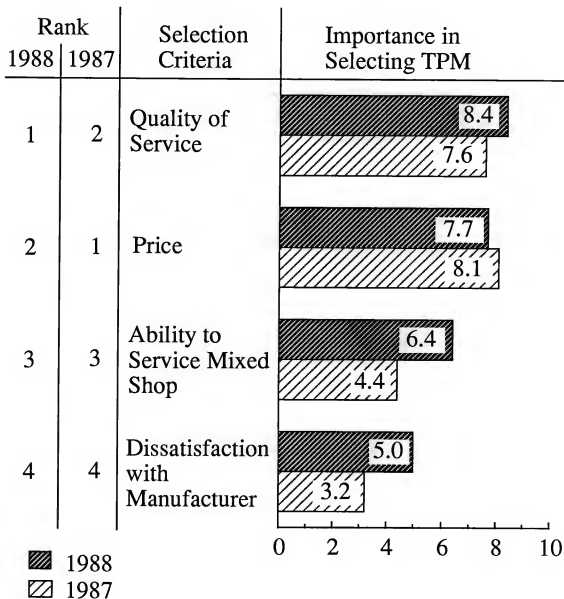- Key to Quality Product Support

- History of High Profits

INPUT

MARKETPLACE

- Discounting of Hardware Leads to Discounting Service

- Systems Integration Leads to Multivendor Service/Support

- Users Releasing RFPs for Service

- TPMs Very Active

- Sellers to Buyers Market

- Special Bids/Let's Make a Deal!

INPUT

TPM SELECTION CRITERIA

Rank 1988	Rank 1987	Selection Criteria	Importance in Selecting TPM
1	2	Quality of Service	8.4 / 7.6
2	1	Price	7.7 / 8.1
3	3	Ability to Service Mixed Shop	6.4 / 4.4
4	4	Dissatisfaction with Manufacturer	5.0 / 3.2

Scale: 0 2 4 6 8 10

■ 1988
▨ 1987

JJ88-HS-11

INPUT

USER NEEDS

VS.

SERVICE DELIVERED

**SYSTEM AVAILABILITY SATISFACTION
AT SPECIFIC REQUIREMENT LEVELS
LARGE SYSTEMS**

Percent of
Sample
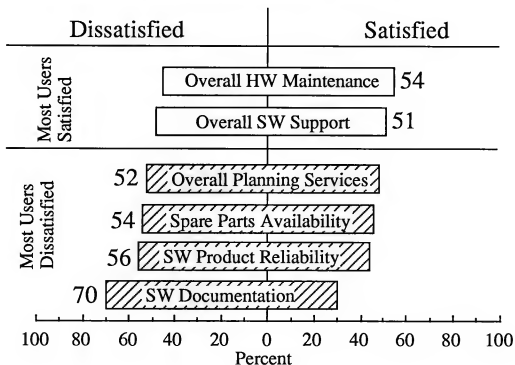
System Availability Requirement Level
(Percent)
Sample 372

□ Cumulative Percent Required
◆ Cumulative Percent Satisfied
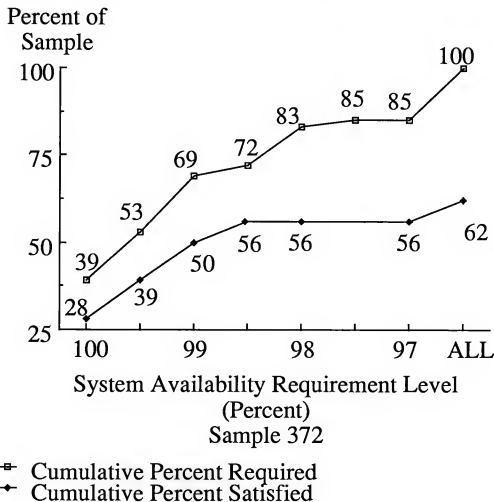
INPUT

USER SATISFACTION WITH
HIGH-PRIORITY SERVICES
LARGE SYSTEMS

	Dissatisfied	Satisfied

Most Users Satisfied

| HW Eng. Skill Level | 60 |
| HW Support Overall | 53 |

Most Users Dissatisfied

54	Software Eng. Skill Level
55	Parts Availability
57	Software Support Overall
70	Software Documentation

100 75 50 25 0 25 50 75 100
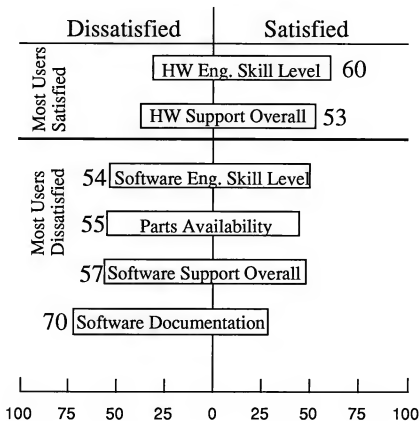
INPUT

SMALL SYSTEM USER SATISFACTION
WITH KEY SUPPORT SERVICES

Dissatisfied	Satisfied

Most Users Satisfied

Overall HW Maintenance │ 54

Overall SW Support │ 51

Most Users Dissatisfied

52 ///Overall Planning Services///

54 ///Spare Parts Availability///

56 ///SW Product Reliability///

70 ///SW Documentation///

100 80 60 40 20   0   20 40 60 80 100
Percent

INPUT

**IBM'S ACTIONS
1986 - 1989**

1986

- Corporate Service Amendment Announced
  - Initialization Fee and IBM Assessment
  - Entire Product Line except Copiers and Typewriters

- OEM Support Reinstated
  - Problem Determination
  - Personal Computers

- LPSA Withdrawn (Bundled with Software License)

INPUT

**IBM'S ACTIONS
1986 - 1989**

1987

- IBM Key Goals Modified
  - IBM/Customer Partnership
  - Year of the Customer
  - Openness

- All Sales Personnel Assigned Maintenance Quotas
  - Marketing Support Moved to Marketing Divisions

INPUT

(3)

IBM'S ACTIONS
1986 - 1989

1987 (continued)

- Offering Changes
  - Enhanced CSA
    - 1-, 3-, 5-Year Options
    - 21 Shifts at N/C
    - Simplified Assessment
    - Reduced Withdrawal Terms
    - 5-Year Discounts from 19% to 45%

  - MRSA
    - 3X, 4300, 9370
    - No Initialization Fee
    - Customer Certifies Using Procedures
    - 3 and 5 Year, 21 Shifts
    - 5-Year Discounts from 17% to 30%

  - Enhanced OEM Support (PC and System Integration)

  - 4-Hour On-Site Response Time

  - 21 Shift Standard M/A

  - Per Call (M-F 7 a.m. to 6 p.m.)

  - 2-Hour Minimum on Every Call

  - Limited OTC Parts Sales/Raised Fees

— INPUT —

IBM'S ACTIONS
1986 - 1989

1987 (continued)

- HVLC Services
  ° IOR, IOE, and COE Only
  ° National Courier Service

• Administrative Consolidations

• Major Non-Field Headcount Reductions

• Midrange Customer Appreciation Program

• New Increased Field Manpower

INPUT

IBM'S ACTIONS
1986 - 1989

1988

- Custom Operational Services Announced
  - Site Planning/Preparation
  - Cabling
  - Relocation

- IBM Buys Pactel's Spectrum Services Division

- A/S 400 Announced
  - Very Low Service Prices
  - Sophisticated Remote Support

- Extended Maintenance Option Announced
  - Prepayment Discount
  - 3-, 4-, 5-Year Term
  - Selected Machine Types

INPUT

IBM'S ACTIONS
1986 - 1989

1988 (continued)

- Technical Services Management
  - Mixed Vendor Support
  - Repair Coordination
  - Maintenance Coordination
  - Service Management

- Telecommunications Services, Network Support
  - Remote Network Management Assistance
  - Mixed Vendor Coordination
  - Advanced Network Monitoring and Diagnostic Tools

INPUT

IBM'S ACTIONS
1986-1989

1989

- Service Plan
  - All Service Offering under One Contract

- Estimated Billing Option
  - Five-Year Contract with One-Year Increments
  - Fixed Price
  - Single Invoice—Monthly, Quarterly, Semiannual, Annual
  - Enterprise, Establishment, or Customer Number
  - Includes non-IBM Devices

- Extended Maintenance Option
  - Extended to All except Usage Products
  - Three-, Four-, and Five-Year Prepayments

INPUT

**IBM'S ACTIONS
1986-1989**

1989 (continued)

- Design and Contractor Services for Data Centers
  - Turnkey
  - Evaluation, Design, Contractor Services

- Equipment Modification Enhancement
  - Custom-Furnished Parts
  - 308X, System 36, System 38
  - Faster Response Time

- Service Director
  - P/S 2-Mod 80
  - Monitors Log Rec Thresholds
  - Autocalls Support Center
  - Accounts with Over 16 Spindles

- Remarketer Program
  - Customer Orders IBM Service from Remarketer
  - IBM Sells to Remarketer, Who then Sells to Customer

INPUT

IBM ServicePlan^{SM}
ServicePlan Offerings

ServicePlan Offerings Selection Page

International Business Machines Corporation (IBM) is pleased to offer the Customer (you) the ServicePlan Offerings listed below. You may select one or more ServicePlan contract Offerings by initialing the spaces indicated and signing below. IBM will issue a confirming document for each Offering to confirm your selected service coverage. Contracts previously executed and still in effect will continue until expiration or termination, and need not be initialed. The information in parentheses below indicates the current contract version number for each Offering you initial.

Maintenance Services
__ IBM MA (MA V3275-02)
__ Multiple Vendor Services (MVS V4150-01)

Availability Services
__ Network Support (NS V4173-01)

MA Financial Options
__ EMO (EMO V4140-01)
__ CSA (CSA V3927-03)
__ MRSA (MRSA V4035-01)
__ VMA (VMA V3777-01)
__ CFMS (CFMS V3333-03)

Professional Services
(Including Customized Operational Services)
__ Agreement for IBM Professional Services (PS V4193-00)

Invoicing Options
__ Estimated Billing (EB V4116-00)

Information Network Services
__ IBM Information Network Agreement (IBM IN V3242-03)

^{SM} Service mark of International Business Machines Corporation.

THE PARTIES ACKNOWLEDGE THAT THEY HAVE READ EACH AGREEMENT AND AMENDMENT DESIGNATED BY YOUR INITIALS, AND INCLUDED HEREWITH, UNDERSTAND THEM, AND AGREE TO BE BOUND BY THEIR TERMS AND CONDITIONS.

Accepted by:
International Business Machines Corporation
Armonk, New York 10504

_____
Customer Name

By _____   By _____
    Authorized Signature   Authorized Signature

Name (Type or Print) _____ Date   Name (Type or Print) _____ Date

Agreement No.:   Customer No.:

IBM Branch Office No.:   Customer Address:

IBM Branch Office Address:

IBM

	Past	Present
Services	↓	↑
Prices	↑	↓
Mixed Vendor	Restrictive ↑	↓ Proactive Unrestrictive
Non-Field Costs	↑	↓
Administrative Complexity	↑	↓

INPUT

IBM WORLDWIDE
$ Millions

	1985	1986	1987	1st 9 Months 1987	1st 9 Months 1988
Maintenance Revenue	6,103	7,413	7,691	5,764	5,507
Maintenance Cost	2,561	3,032	3,417	N/A	N/A
Gross Profit	58.0%	59.1%	55.6%	N/A	N/A

IBM U.S.
$ Billions

	1986	1987	1988 (Est.)
Maintenance	4.0	3.7	3.2

INPUT

CUSTOMER SUPPORT: HIGHLIGHTS, 1987-88

3/87   DEC Extends Warranty to 1 Year on Everything

3/87   Harris Enters TPM Market

6/87   CDC Responds to CSA

7/87   TRW Responds with Service Plus

7/87   DSI/DEC Settle Lawsuit—Proprietary Diagnostics

8/87   Servcom Targets WANG and Datapoint Users

9/87   Intelogic Trace Offers Response Guarantees

10/87 Hypoint Sues Hewlett-Packard

11/87 Sorbus Enters DEC Market

11/87 Decision Data Responds to MRSA

1/88   Sorbus Sells MAI-Basic Four Service
       Sorbus Layoffs Result
       Sell Service to Large National Accounts

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CUSTOMER SUPPORT: HIGHLIGHTS, 1987-88
(Continued)

1/88   CDC Matches 24 Hour/7 Day IBM Offering
        Plus More Savings for 8 Hour, 5 Day Services

2/88   Prime's 1987 Service Revenue Increases 24% to
        $320 Million

        Digital's 1987 Service Revenue Increases 29% to
        $3.43 Billion

        Data General's 1987 Service Revenue Increases 7%
        to $435 Million

4/88   Data Serve Cuts 5% of Work Force

5/88   TSSI Terminates 60 Employees, 17% of Work
        Force

5/88   CDC Offers Software and System Management
        Services (ProAct)

5/88   Sorbus Announces European Clone of U.S.
        Operation

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CUSTOMER SUPPORT: HIGHLIGHTS, 1987-88
(Continued)

5/88   Computerland Steps Up Efforts to Sell Service to Large National Accounts

5/88   Hewlett-Packard Service Revenue Grew 20% Over 1987 to $1,775 Million

7/88   DEC Offers New Field Service Product Profiles

7/88   Allen-Millard Lawsuit against IBM Dismissed

7/88   Grumman Files Antitrust Suit against Data General

7/88   Data Gate's Suit Against Hewlett-Packard Dismissed

8/88   Intelogic Trace Offers Guaranteed On-Site Response, also 24 Hour, 7 Day per Week Service for Sys 34, 36 Users

8/88   TRW to Acquire 3M TPM Business

9/88   Data General Offers 5 New Services at 3-, 4-, 5-Year Terms

INPUT

STRATEGIC IMPLICATIONS OVERALL

- Reduced revenue and profit opportunities for base maintenance

    1st — Service of IBM products

    Followed by — Service of all vendors' products

- Total cost of ownership reduced

    1st — IBM products

    Followed by — All vendors' products

- User equity will emerge as a key issue as market changes from seller's to buyer's

- Key objective of hardware, software, and service vendors should be high availability at lowest cost

- Service offerings will broaden to cover everything a customer needs to achieve high availability at lowest cost

- Cost pressures and economies of scale will result in more mergers and acquisitions

INPUT

STRATEGIC IMPLICATIONS—VENDORS' FOCUS ITEMS

Hardware Product Managers
- Account Control
- Total Cost of Ownership (New Products)
- High Availability
- Third-Party Entry

Software Product Managers
- Improved Training, Documentation, On-Site Support

Service Operational Management
- Customers' Total Needs vs. Service Delivered
- Marketing of Service
- Cost of Service

Service Business Managers
- Equity
- Third-Party Entry
- VAR/VAD Support
- Third-Party Support
- Broadened Offerings
  - Multivendor
  - Network Management
  - Ancillary Services
- Reducing Administrative Complexity

INPUT

STRATEGIC IMPLICATIONS—DEALERS/VARS' FOCUS ITEMS

- Profit Opportunity for Service

- Account Control Opportunity

- Press for Maximum Vendor Support
    - Training
    - Documentation
    - Proprietary Diagnostics
    - Use of Support Structure
    - Parts Logistics

- Broaden Offerings to Customers' Total Needs

INPUT

STRATEGIC IMPLICATIONS—TPMs
FOCUS ITEMS

- Reduced Margins Will Result in More Mergers/Acquisitions

- Sophisticated Support Will Be Required to Achieve High Availability at Lowest Cost
  - Remote Support
  - Parts Logistics

- Vendor Support Will Decrease, Prices Will Increase

- Key Strengths Will Be Full Multivendor Support and Level of Service

- Price Differential with Vendors Will Decrease

INPUT

STRATEGIC IMPLICATIONS—USERS' FOCUS ITEMS

Differences in System Availability Received

Differences in Support Required/Received

Software Education/Documentation

Problem Management Records

Equity

INPUT

Customer Service Program—U.S.

EFFECTIVE PLANNING FOR EFFECTIVE PERFORMANCE

The Customer Service Program—U.S. analyzes and forecasts the computer equipment and software maintenance and support industry. It emphasizes the determination of user needs and vendor performance in meeting these needs.

Through research-based studies and support services the program provides information you need to forecast service requirements, analyze competition, and address the challenges of new technology.

SCOPE

The program provides an overall examination of the computer customer service industry through a major market report, newsletters, and support servcies. It contains 4 modules, each of which addresses one segment of the industry in detail:

> Large Systems
> Midrange Systems
> PCs/Workstations
> Third-Party Maintenance

One module selected by you is part of the basic program: you may select additional modules to complete your program.

"CUSTOMIZED" CUSTOMER SATISFACTION SURVEY

INPUT conducts a customer satisfaction survey for each subscribing company. INPUT surveys up to fifty customers from names you provide. You receive a proprietary report, and the data is incorporated into INPUT's data base.

CUSTOMER SERVICE MARKET REPORT

This major report:

- Presents forecasts of user expenditures for service for each market category
- Examines key customer service issues
- Identifies trends that could help or hinder success
- Pinpoints new opportunities for service revenue
- Recommends specific action to increase revenue

CUSTOMER SERVICE USER REQUIREMENTS REPORTS

Four Customer Service User Requirements Reports are produced: Large Systems, Midrange Systems, PCs/Workstations, and Third-Party Maintenance (TPM). Each report measures the importance of service components and user satisfaction with vendor performance for:

- Equipment maintenance
- Software support
- Professional services
- Education and training services
- Documentation

CUSTOMER SERVICE VENDOR ANALYSIS REPORTS

Four Customer Service Vendor Analysis Reports are produced: Large Systems, Midrange Systems, PCs/Workstations, and TPM. Each report:

- Profiles key service vendors
- Analyzes service discounting, warranty, and pricing practices and trends
- Addresses marketing tactics and strategies
- Examines specific service offerings

CLIENT SUPPORT

Access to INPUT Consultants
Clients receive continuous support from INPUT's consultants and executives. Call them for reactions and opinions.

"Hotline" Inquiry Service
The "Hotline" Inquiry Service provides fulfillment of 'short-term' research needs (requiring less than two hours) as well as clarification/amplification of report and presentation data.

Customer Service Newsletter
Questions posed by our clients through the "Hotline" Inquiry Service along with answers are reported. Current topics in the U.S. and Europe in customer service are analyzed—e.g., new vendor pricing strategies or service offerings.

On-Site Visit
An INPUT consultant presents research results and industry forecasts at your site. Your issues and interests are discussed together with industry trends.

Customer Service Conference
INPUT analyses and forecasts are presented and discussed. Vendor strategies and key industry trends will be presented.

Joint Client Conference
This annual conference enables INPUT's clients to be updated on key strategic industry trends and developments, as well as to meet senior staff from other INPUT clients. Attendance at this conference is available at a reduced fee for full subscribers.

RELATED SERVICES

- Customer Service Program—Europe covers the European equipment and software maintenance and support industry.

- Custom Research and Consulting projects analyze market opportunities, user needs, competitive environment, acquisition targets, etc.

- Consultant Presentations—INPUT's consultants are available to provide presentations for planning meetings, user groups, or other functions.

PROGRAM DESCRIPTION

CUSTOMER SERVICE MARKET REPORT

- Contains Market Forecasts (1989-1994)
- Customer Service Market Categories:
  - Large Systems
  - Midrange Systems
  - PC/Workstations
  - Third-Party Maintenance

LARGE SYSTEMS MODULE

- User Requirements Report
- Vendor Analysis Report

MIDRANGE SYSTEMS MODULE

- User Requirements Report
- Vendor Analysis Report

PCs/WORKSTATIONS MODULE

- User Requirements Report
- Vendor Analysis Report

THIRD-PARTY MAINTENANCE MODULE

- User Requirements Report
- Vendor Analysis Report

CLIENT SUPPORT

- Access to INPUT Consultants
- "Hotline" Inquiry Service
- On-Site Visit
- Customer Service Newsletter
- Customer Service Conference
- Joint Client Conference

H.W. Stigler
Manager, Customer Service Program
INPUT

H.W. (Buddy) Stigler is Manager of INPUT's Customer Service Program research. Mr. Stigler brings to INPUT more than 39 years of experience in a diversified career with IBM. His information services and customer service background is vast. Mr. Stigler has been involved in the installation, maintenance, and software support of systems for most of his career. Additionally, he has considerable experience in competitive analysis, customer satisfaction, customer requirements, and needs evaluation. Mr. Stigler has served as a director of planning, measurements, I/S, staff services, offerings, and special bids. He holds a B.S. in electrical engineering from Mississippi State University and an M.S. from MIT (Sloan Fellow) in industrial management.

U.S. Customer
Service Market
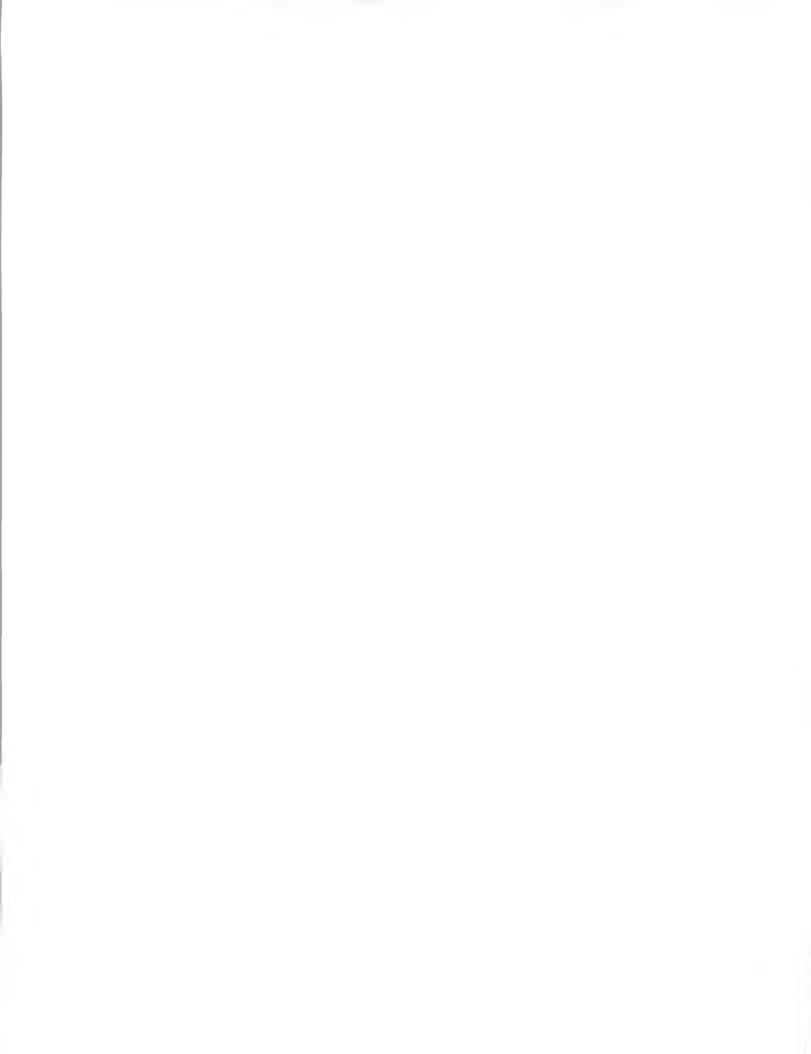
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Service Market Definition

- U.S. Service Market Includes
  - Hardware Maintenance
  - Professional Services

- Software Support Separate
  - Cannot Separate from Software
  - Includes New Versions

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NOTES:

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Forecast Methodology

- 1987 Base Year
  - Vendor Surveys
  - Annual Reports
  - 10Ks

- 1988 Forecast
  - Vendor Surveys
  - Quarterly Reports

INPUT

NOTES:

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45

Forecast Methodology

- Product Categories
  - Installed Base
  - Configuration/Pricing Model

- Forecast 1988-1993
  - Expected Product Shipments
  - Technology/Pricing Trends

INPUT

NOTES:

FPRB-99

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49

Market Analysis and Forecast

- Overview/Product Category
- Market Share
- TPM Market
- Fourth-Party Maintenance
- Professional Service
- Software Support

INPUT

NOTES:

FPRB-75

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U.S. Service Market* 1988-1993

Product	User Expenditures		
	1988 ($B)	1993 ($B)	88-93 AAGR (Percent)
Large Systems	1.2	1.4	4
Small Systems	3.6	5.1	7
Micro/Workstations	1.1	1.7	10
Peripherals	6.6	8.9	6
Total	12.6	17.1	6

*Does not include software support

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NOTES:

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51

1988 U.S. Customer Service Market

Peripherals

53%

9% Large Systems

29% Small Systems

9% Micro/ Workstations

1988 U.S. Total
Service Market: $12.6 B

INPUT

NOTES:

FPRB-77

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1993 U.S. Customer Service Market

Peripherals

Large Systems 8%

Small Systems 30%

52%

Micro/ Workstations 10%
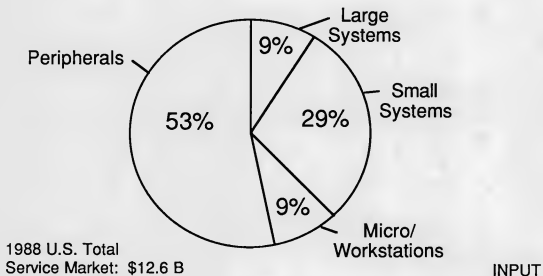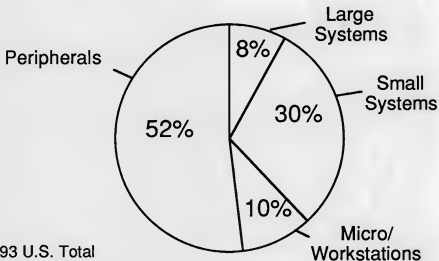
1993 U.S. Total
Service Market: $17.1 B

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NOTES:

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Top Eight Large System* Service Vendors By Market Share

Rank	Company	87 Revs ($M)	Market Share (Percent)
1	IBM	1900	63
2	Unisys	410	14
3	CDC	156	6
4	Amdahl	125	4

*Includes Associated Peripheral Service Revenue

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NOTES:

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Top Eight Large System* Service Vendors By Market Share

Rank	Company	87 Revs ($M)	Market** Share (%)
5	Honeywell-Bull	120	4
6	NAS	116	3
7	Cray	100	3
8	NCR	75	2

* Includes Associated Peripheral Service Revenue
** Manufacturer-Supplied Market

INPUT

NOTES:

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Top Ten Small System* Service Vendors By Market Share

Rank	Company	87 Revs ($M)	Market Share (Percent)
1	DEC	1,698	23
2	IBM	1,600	21
3	NCR	900	12
4	Unisys	501	7
5	HP	424	6

*Includes Associated Peripheral Service Revenue

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NOTES:

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Top Ten Small System* Service Vendors By Market Share

Rank	Company	87 Revs ($M)	Market ** Share (%)
6	Data General	261	3
7	Wang	255	3
8	Prime	190	3
9	Honeywell-Bull	160	2
10	AT&T	150	2

* Includes Associated Peripheral Service Revenue
** Manufacturer-Supplied Market

INPUT

NOTES:

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51

U.S. TPM Market, 1988-1993

Product	User Expenditures		
	1988 ($M)	1993 ($M)	88-93 AAGR (Percent)
Large Systems	100	110	2
Small Systems	370	490	6
Micro/Workstations	580	850	8

NOTES:

FPRB-83a

U.S. TPM Market, 1988-1993

Product	User Expenditures		
	1988 ($M)	1993 ($M)	88-93 AAGR (Percent)
Peripherals	530	640	4
Telecom	150	220	8
Total	1730	2310	6

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NOTES:

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Top Ten TPMs by Market Share

Rank	Company	87 Revs ($M)	Market Share (%)
1	TRW	255	15
2	Sorbus	220	13
3	GE	198	12
4	Intelogic Trace	134	8
5	CDC	100	6

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NOTES:

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(w)

Top Ten TPMs by Market Share

Rank	Company	87 Revs ($M)	Market Share (%)
6	Servcom	79	5
7	Decision Data	70	4
8	Dataserv	67	4
9	Unisys	45	3
10	Grumman	40	2

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NOTES:

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Fourth-Party Maintenance Market

	User Expenditures		
Service	1988 ($M)	1993 ($M)	88-93 CAGR (Percent)
Refurb	40	90	17
Refeature	10	50	29
Recondition	160	370	19
Total	210	510	21

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NOTES:

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U.S. Professional Service Market—1988-1993

	User Expenditures		
Product	1988 ($M)	1993 ($M)	88-93 CAGR (Percent)
Large	350	900	21
Small	400	1050	21
Total	750	1950	21

NOTES:

U.S. Software Support Market*
1988-1993

Software	User Expenditures		
	1988 ($B)	1993 ($B)	88-93 CAGR (Percent)
Applications	2.2	5.9	22
Systems	2.4	6.2	21
All Software**	4.6	12.1	21

* Includes new versions
** Software support is not included
   in U.S. customer service market

INPUT

NOTES:

FPRB-88

INPUT

User Requirements
vs.
Service Delivered

INPUT

1988 INPUT Research Base

User Research	No. of Surveys
Large System Users	381
Small System Users	399
TPM Users	200
Total Users	980

INPUT

NOTES:

FPRB-22a

INPUT

Service Contract Coverage
All Large-Systems

Contract Component	Sample Responding (Percent)	
	1987	1988
• Days of coverage		
- Monday – Friday	55	46
- Monday – Saturday	7	2
- Monday – Sunday	38	52

INPUT

NOTES:

FPRB-23a

INPUT

Service Contract Coverage
All Large-Systems

Contract Component	Sample Responding (Percent)	
	1987	1988
• Hours of coverage		
- 1 to 9 hours	39	34
- 10 to 16 hours	21	11
- 17 to 24 hours	40	55

INPUT

NOTES:

FPRB-23b

INPUT

System Availability Analysis
All Large Systems

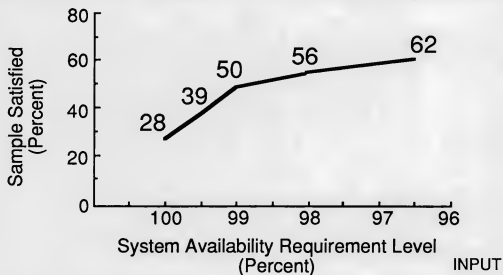| Performance Criteria	Received	Percent Satisfied
		50 100
System Availability (%)	97.9	62
Response Time (hrs)	1.7	93
Repair Time (hrs)	4.2	88

INPUT

NOTES:

FPRB-24

INPUT
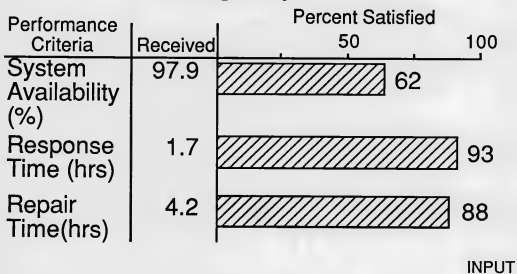
Large Systems System Availability 1983-1988

NOTES:

INPUT
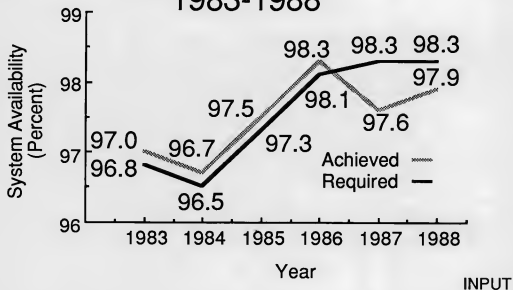
System Availability Satisfaction by Requirement Level—All Large Systems

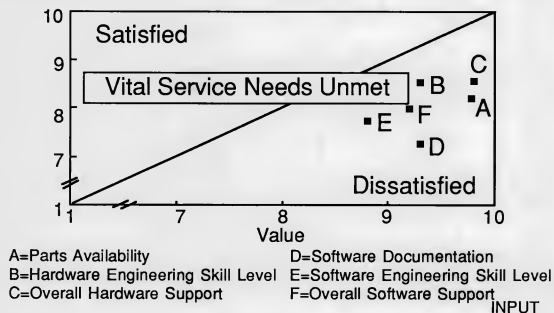NOTES:

System Interruption
Analysis—All Large Systems

• Systems Interruptions (per month)	1.6

	Percent
- Hardware caused	49
- System Software caused	21
- Application Software caused	11
- Other caused	19

INPUT

NOTES:

FPRB-27

INPUT

Large-Systems User Needs Still Unmet

A=Parts Availability
B=Hardware Engineering Skill Level
C=Overall Hardware Support
D=Software Documentation
E=Software Engineering Skill Level
F=Overall Software Support

INPUT

NOTES:

FPRB-28

INPUT

Large System User Satisfaction with High-Priority Services

Dissatisfied				Satisfied			

Most Users Satisfied

HW Eng. Skill Level 60

HW Support Overall 53

| 100 | 75 | 50 | 25 | 0 | 25 | 50 | 75 | 100 |

Percent of Users
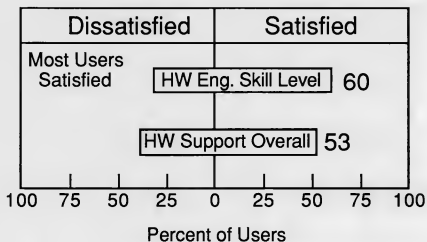
NOTES:

FPRB-29a

Large System User Satisfaction with High-Priority Services

| | Dissatisfied | | | | | | | Satisfied | | | |

	Dissatisfied	Satisfied
Most Users Dis-satisfied	54 Software Eng. Skill Level	
	55 Parts Availability	
	57 Software Support Overall	
	76 Software Documentation	

100 75 50 25 0 25 50 75 100

Percent of Users

NOTES:

Systems Availability Performance— Large Systems

Vendor	Sys. Avail. Received (Percent)	Percent Satisfied
NAS	99.0	85
Amdahl	98.2	78
NCR	97.1	61
IBM 309X	98.1	58
IBM 308X	98.6	58

INPUT

NOTES:

FPRB-31

INPUT

Systems Availability Performance— Large Systems

Vendor	Sys. Avail. Received (Percent)	Percent Satisfied
UNISYS (Sperry)	97.4	57
UNISYS (Burroughs)	97.5	56
CDC	97.5	53
Honeywell	97.1	49

INPUT

NOTES:

INPUT

Response Time Performance—
Large Systems

Vendor	Resp. Time Received (Hours)	Percent Satisfied
IBM 309X	1.5	100
Amdahl	1.4	97
CDC	3.1	97
IBM 308X	1.3	97
Honeywell	1.4	92

INPUT

NOTES:

FPRB-33

INPUT

Response Time Performance— Large Systems

Vendor	Resp. Time Received (Hours)	Percent Satisfied
NAS	1.5	91
NCR	2.0	91
UNISYS (Burroughs)	1.6	88
UNISYS (Sperry)	1.5	79

INPUT

NOTES:

FPRB-34

INPUT

User Surveys
Small Systems

INPUT

NOTES:

FPRB-37

INPUT

Service Contract Coverage
All Small Systems

Contract Component	Sample Responding (Percent)
Days of Coverage	
Monday – Friday	66
Monday – Saturday	4
Monday – Sunday	30

INPUT

NOTES:

FPRB-38a

INPUT

Service Contract Coverage
All Small Systems

Contract Component	Sample Responding (Percent)
Hours of Coverage	
1–9 Hours	54
10–16 Hours	14
17–24 Hours	32

INPUT

NOTES:

FPRB-38b

INPUT

System Availability Analysis
All Small Systems

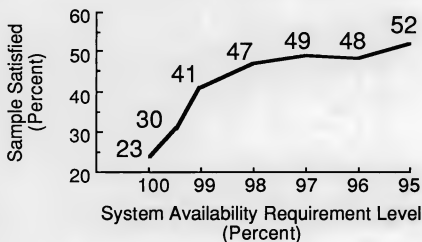| Performance Criteria	Received	Percent Satisfied
System Availability (%)	96.1	56
Response Time (hrs)	4.5	83
Repair Time (hrs)	6.4	86
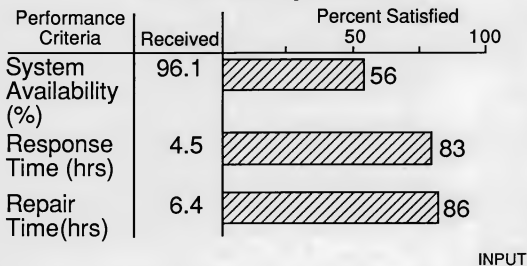
INPUT

NOTES:

FPRB-39

INPUT

Small Systems System Availability
1983-1988

NOTES:

FPRB-40

INPUT

System Availability Satisfaction
by Required Level All Small Systems

NOTES:

FPRB-41
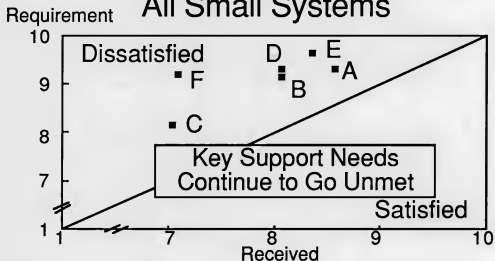
INPUT

System Interruption Analysis
All Small Systems

System Interruptions (per Month)	1.2
	Percent
Hardware Caused	56
System Software Caused	15
Applications Software Caused	8
Other Caused	21
(i.e., user-caused)	

INPUT

NOTES:

FPRB-42

INPUT

Key Service Requirements vs. Received
All Small Systems

A=Overall HW Maintenance
B=Overall SW Support
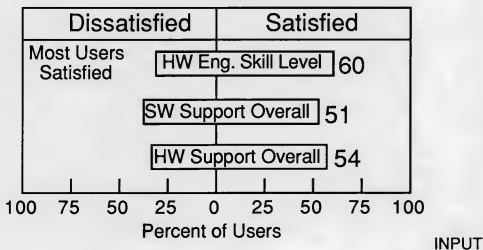C=Overall Planning Services
D=Spare Parts Availability
E=SW Product Reliability
F=SW Documentation

NOTES:

FPRB-43

INPUT

Small System User Satisfaction
with High-Priority Services

Dissatisfied	Satisfied
Most Users Satisfied	HW Eng. Skill Level 60
	SW Support Overall 51
	HW Support Overall 54

100 75 50 25 0 25 50 75 100
Percent of Users

INPUT

NOTES:

FPRB-44a

INPUT

90

Small System User Satisfaction with High-Priority Services

Dissatisfied	Satisfied

Most Users Dissatisfied

53 SW Eng. Skill Level

54 Parts Availability

70 SW Documentation

100 75 50 25 0 25 50 75 100

Percent of Users

INPUT

NOTES:

FPRB-44b

INPUT

Systems Availability Performance— Small Systems

Vendor	Sys. Avail. Received (Percent)	Percent Satisfied
DEC VAX 8XXX	96.5	93
AT&T	96.3	67
Concurrent	96.3	63
HP	97.1	63
Prime	95.8	62

INPUT

NOTES:

FPRB-45

INPUT

Systems Availability Performance— Small Systems

Vendor	Sys. Avail. Received (Percent)	Percent Satisfied
IBM Sys/38	96.2	53
DG	97.0	50
DEC PDP	95.3	47
IBM 9370	94.6	45
Wang	95.5	31

INPUT

NOTES:

INPUT

Response Time Performance— Small Systems

Vendor	Resp. Time Received (Hours)	Percent Satisfied
HP	3.4	96
Prime	2.6	94
IBM Sys/38	1.7	92
Concurrent	6.3	92
DEC VAX 8XXX	3.2	89

INPUT

NOTES:

FPRB-47

INPUT

Response Time Performance—
Small Systems

Vendor	Resp. Time Received (Hours)	Percent Satisfied
IBM 9370	1.7	86
DEC PDP	3.5	85
DG	3.6	81
AT&T	10.7	77
Wang	3.9	75

INPUT

NOTES:

FPRB-48

INPUT

9

User Surveys

Third-Party Maintenance

INPUT

NOTES:

INPUT

TPM Contract Coverage— All Users

Service Coverage	Sample (Percent)
Days of Coverage	
Monday—Friday	71
Monday—Saturday	4
Monday—Sunday	25

INPUT

NOTES:

INPUT

TPM Contract Coverage— All Users

Service Coverage	Sample (Percent)
Hours of Coverage	
1—9 Hours	62
10—16 Hours	9
17—24 Hours	29

INPUT

NOTES:

FPRB-52b

INPUT

TPM System Availability Analysis—
All Users

Component	Require	Receive	Percent Satisfied
System Availability (Percent)	96.9	96.0	59
Response Time (Hrs)	4.9	5.2	80
Repair Time (Hrs)	6.0	5.9	83

0   25   50   75   100

INPUT

NOTES:

FPRB-53

INPUT

TPM System Availability Satisfaction by Requirement Level—All Users
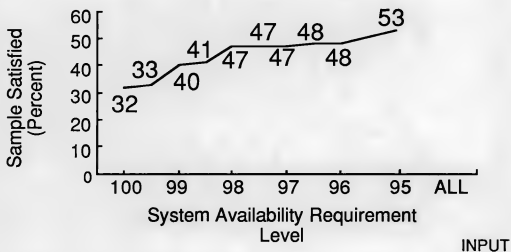
FPRB-54

INPUT

TPM System Interruption Analysis—All Users

System Interruptions (per Month)	2.0
	Percent
Hardware Caused	57
System Software Caused	14
Applications Software Caused	8
Other (i.e., User Caused)	21

INPUT

NOTES:

FPRB-55

INPUT

TPM Hardware Maintenance
Required vs. Received, All Users

Requirement
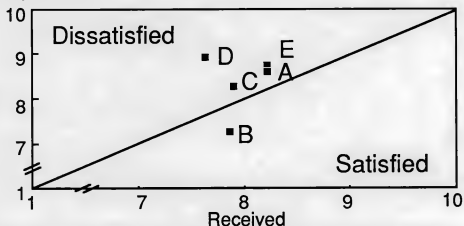
Dissatisfied

Satisfied

Received

A=Hardware Engineer Skill   D=Spare Parts Availability
B=Hardware Phone Support Staff   E=Overall Hardware   INPUT
C=Hardware Dispatch   Maintenance

FPRB-56

INPUT

TPM Hardware Maintenance
Satisfaction—
All Users

Service	Percent Satisfied
Hardware Engineer Skill	63
Hardware Phone Support Staff	76
Hardware Dispatch	60

INPUT

FPRB-57a

NOTES:

INPUT

TPM Hardware Maintenance
Satisfaction—
All Users

Service	Percent Satisfied
Spare Parts Availability	46
Overall Hardware Maintenance	64

0   50   100

INPUT

NOTES:

FPRB-57b

INPUT
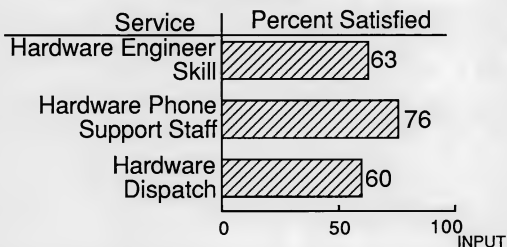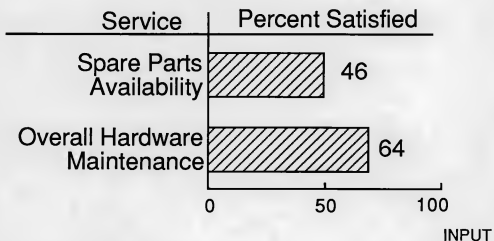
TPM Versus Manufacturer
System Availability Performance

Vendor Type	(Percent) Req.	Rec.	Percent Satisfied
TPM	97.9	98.7	89
MFR	98.3	97.9	63
TPM	96.7	95.0	55
MFR	96.9	96.1	56

☑ Large System
▨ Small System
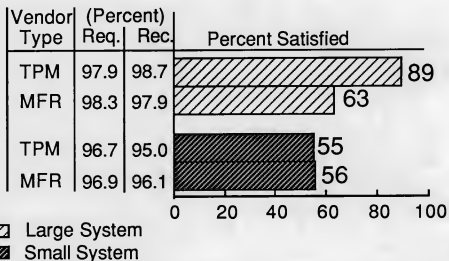
INPUT

NOTES:

FPRB-58

INPUT

User Satisfaction With Hardware Maintenance—
TPM Versus Manufacturer

Product Type	Percent Satisfied

Large System
- TPM: 78
- Manufacturer: 76

Small Systems
- TPM: 65
- Manufacturer: 54

0 20 40 60 80 100

☐ TPM
▨ Manufacturer
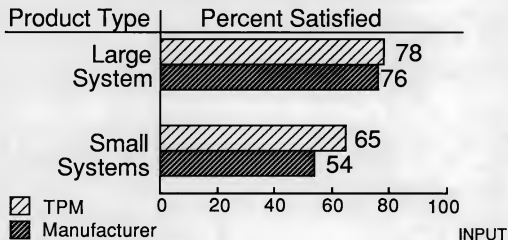
INPUT

NOTES:

FPRB-59

INPUT

User Satisfaction with Parts Availability
TPM Versus Manufacturer

Product Type	Percent Satisfied
Large System	TPM 56 / Manufacturer 60
Small System	TPM 49 / Manufacturer 46

TPM
Manufacturer

0   20   40   60   80   100

INPUT

NOTES:

FPRB-60

INPUT

TPM Selection Criteria

Rank		Selection Criteria	Importance in Selecting TPM
1988	1987		
1	2	Quality of Service	8.4 (1988) / 7.6 (1987)
2	1	Price	7.7 (1988) / 8.1 (1987)

1988 1987

INPUT

NOTES:

FPRB-61a

INPUT

TPM Selection Criteria

Rank		Selection	Importance in
1988	1987	Criteria	Selecting TPM
3	3	Ability to Service Mixed Vendor	6.4 (1988) / 4.4 (1987)
4	4	Dissatisfaction with Manufacturer	5.0 (1988) / 3.2 (1987)

☑ 1988 ▨ 1987

0 2 4 6 8 10

INPUT

NOTES:

FPRB-61b

INPUT

User Surveys

- Large Systems

- Small Systems

- Third Party Maintenance

INPUT

Conclusions

INPUT

Conclusions

- Customer Needs Not Being Met

- System and Network Availability
  Are Objectives

- Software Documentation and
  Support Are Key

INPUT

NOTES:

FPRB-90a

INPUT

Conclusions

- Term and Prepayment Discounts Will Spread

- Selective Discounting Will Increase

- Margins Will Continue to Decline

INPUT

NOTES:

FPRB-90b

INPUT

Conclusions

- Complexity Issues Will Become a Major Problem

- Role of Channels Will Become More Important

- Vendors Will Harden TPM Policies

INPUT

NOTES:

FPRB-91a

INPUT

Conclusions

- Mergers and Acquisitions Will Continue

- Customer Equity Will Become a Key Issue

- Service Offerings Will Broaden to Achieve High Availability

INPUT

NOTES:

FPRB-91b

INPUT